

What is claimed is:

1. A garment for measuring biological information formed of a nonconductive material having elasticity so as to fit on the upper body of an examinee,

the garment being characterized in comprising chest lead electrodes, formed of a conductive material capable of acquiring a heart potential at vicinity of chest part under a condition of less myoelectric influence regardless of individual difference of the heart position by forming the chest lead electrodes which cover from the body surface around the fourth rib to the body surface around the sixth rib when the examinee wears the garment and capable of delivering the potential to a cardiogram analysis device, the chest lead electrodes being arranged on the garment at least six positions from a position having a boarder with near presternal region of the examinee to vicinity of left chest lateral part.

2. A garment for measuring biological information formed of a nonconductive material having elasticity,

the garment being characterized in comprising chest lead electrodes, formed of a conductive material capable of acquiring a heart potential at vicinity of chest part when an examinee wears the garment, the chest lead electrodes having a length of more than 5 cm and less than 30 cm in a direction of the total length from vicinity of front center of the garment to vicinity of left side of the garment.

3. A garment for measuring biological information formed of a nonconductive material,

the garment being characterized in comprising chest lead electrodes, formed of a conductive material capable of acquiring a heart potential at vicinity of chest part under a condition of less myoelectric influence regardless of individual difference of the heart position by forming the chest lead electrodes which cover from the body surface on the chest part when the examinee wears the garment and capable of

delivering the potential to a cardiogram analysis device, the chest lead electrodes being arranged on the garment between near presternal region of the examinee and vicinity of left chest lateral part.

5           4. The garment according to any one of claims 1 through 3, wherein the garment is a shirt worn on the upper body of the examinee, the shirt further comprising four limb electrodes having dimensions so as to at least cover one of the body surface of near color bones of the examinee and the body surface of near pelvis of the examinee and capable of 10 acquiring an electric potential and capable of delivering the potential to the cardiogram analysis device.

15           5. The biological information measuring garment according to any one of claims 1 through 4, wherein the garment further comprises at least one chest electrode one of at a position from around presternal region of the examinee to a position near a side of right chest and a position from near a side of left chest to a position near the back, in addition to the chest lead electrodes.

20           6. A biological information measurement system comprising the garment according to any one of claims 1 through 5 and cardiogram analysis device, wherein the cardiogram analysis device comprises;

25            electric potential information acquisition means for acquiring information on electric potentials based on electric potentials delivered from a plurality of chest lead electrodes;

              electric potential comparison means for comparing amplitudes of the acquired electric potential information;

30            electric potential selection means for selecting the chest lead electrodes detecting a larger amplitude as electric potential information to be based on an output of cardiogram in accordance with the comparison result of the electric potential comparison means; and

              cardiogram analysis output means for outputting cardiogram data after analysis of the electric potential information detected by the selected

chest lead electrodes.

7. A cardiogram analysis device comprising:

electric potential information acquisition means for acquiring

5 information on electric potentials based on electric potentials delivered from a plurality of the chest lead electrodes arranged on a garment for measuring biological information;

electric potential comparison means for comparing a plurality of amplitudes of the acquired electric potential information;

10 electric potential selection means for selecting the chest lead electrodes detecting a larger amplitude as electric potential information to be based on an output of cardiogram in accordance with the comparison result of the electric potential comparison means; and

cardiogram analysis output means for outputting cardiogram data

15 after analysis of the electric potential detected by the chest lead electrodes being selected.

8. A computer readable program for performing a computer as a cardiogram analysis device, the program is operated by the computer as:

20 electric potential information acquisition means for acquiring information on electric potentials based on electric potentials delivered from a plurality of the chest lead electrodes arranged on a garment for measuring biological information;

25 electric potential comparison means for comparing a plurality of amplitudes of the acquired electric potential information;

electric potential selection means for selecting the chest lead electrodes detecting a larger amplitude as electric potential information to be based on an output of cardiogram in accordance with the comparison result of the electric potential comparison means; and

30 cardiogram analysis output means for outputting cardiogram data after analysis of the selected electric potential by the chest lead electrodes being selected.

9. The biological information measurement system, the cardiogram analysis device or the program according to one of claims 6 through 8, wherein the cardiogram analysis output means further displays the position of the chest lead electrodes detecting the selected electric 5 potential information correspondingly with a diagram of the examinee's body.

10. The biological information measuring garment according to any one of claims 1 through 9, wherein the garment comprises a 10 respiratory information measuring sensor, including a conductive member varying its electric resistance according to variation of constitution of the examinee through breathing thereof under a turning-on-electricity state and capable of delivering electric information based on the variation of electric potential to a respiratory information analysis device.

15 11. The biological information measuring garment according to claim 10, wherein the respiratory information measuring sensor is disposed at least on one of a perimeter of the chest and a perimeter of abdominal in the garment, and wherein electric resistance of the 20 respiratory information measuring sensor varies with expansion and contraction of one of the length and cross-section of the conductive member in response to the examinee's breathing.

25 12. The biological information measuring garment according to one of claims 10 and 11, wherein for the respiratory information measuring sensor, electric influence under a turning-on-electricity state to the examinee is decreased by covering a surface of the conductive material facing the body surface of the examinee and an opposed surface thereof with a nonconductive material.

30 13. The biological information measuring garment according to any one of claims 10 through 12, wherein the conductive material of the respiratory information measuring sensors is arranged at a plural

positions at least including one of a position winding around vicinity of chest of the examinee and a position winding around vicinity of abdominal of the examinee.

5           14. A biological information measuring system comprising the garment according to any one of claims 10 through 13 and a respiratory information analysis device, the respiratory information analysis device comprising;

10            electric information acquisition means for acquiring information on electricity delivered from the respiratory information measuring sensors;

              electric information comparison means for comparing a plurality of the acquired electric information;

15            electric information selection means for selecting the respiratory information measuring sensors detecting a larger amplitude as electric potential information to be based on an output of respiratory information in accordance with the comparison result of the electric information comparison means;

20            respiratory information analysis means for judging a variation cycle of the electric information detected with the respiratory information measuring sensors selected by the electric information selection means and analyzing respiratory information in accordance with the variation cycle; and

25            respiratory information output means for outputting respiratory information data in accordance with the analyzed respiratory information.

              15. A respiratory information analysis device comprising:

              electric information acquisition means for acquiring electrical information delivered from a plurality of respiratory information measuring sensors arranged on a garment for measuring biological information;

              electric information comparison means for comparing a plurality of amplitudes of the acquired electric information;

electric information selection means for selecting the respiratory information measuring sensors detecting a larger amplitude as electric information to be based on an output of respiratory information in accordance with the comparison result of the electric information comparison means;

respiratory information analysis means for judging a variation cycle of the electric information detected with the respiratory information measuring sensors selected by the electric information selection means and analyzing respiratory information in accordance with the variation cycle; and

respiratory information output means for outputting respiratory information data in accordance with the analyzed respiratory information.

16. A computer readable program for performing a computer as a cardiogram analysis device, the program is operated by the computer as:

electric information acquisition means for acquiring electric information delivered from a plurality of respiratory information measuring sensors arranged on a garment for measuring biological information, the acquisition means including a conductive material varying its electric resistance according to variation of constitution of the examinee through breathing thereof under a turning-on-electricity state and capable of acquiring electric information based on the variation of electric potential and capable of delivering the information to a respiratory information analysis device;

electric information comparison means for comparing a plurality of the acquired electric information;

electric information selection means for selecting the respiratory information measuring sensors detecting a larger amplitude as electric information to be based on an output of respiratory information in accordance with the comparison result of the electric information comparison means;

respiratory information analysis means for judging a variation cycle of the electric information detected with the respiratory information

measuring sensors selected by the electric information selection means and analyzing respiratory information in accordance with the variation cycle; and

5 respiratory information output means for outputting respiratory information data in accordance with the analyzed respiratory information.

17. The respiratory information analysis system, the respiratory information analysis device or the program according to any one of claims 14 through 16, wherein the respiratory information analysis means further acquires information on a variation cycle of the electric information and information on an R-wave height cycle related to a variation cycle of R-wave height information of cardiogram based on electric potentials delivered from the chest lead electrodes and selects cycle information of either one and analyzes respiratory information in accordance with the selected cycle information.

18. The respiratory information analysis system, the respiratory information analysis device or the program according to claim 17, wherein the respiratory information analysis means further acquires information 20 on amplitude of the electric information and information on R-wave height amplitude related to amplitude of the R-wave height information and selects one of the electric information and the R-wave height information in accordance with comparison of the electric information and the R-wave height information and analyzes respiratory information in accordance with the selected cycle information.

19. The respiratory information analysis system, the respiratory information analysis device or the program according to one of claims 17 and 18, wherein further the respiratory information analysis means 30 display one of a position of the chest lead electrodes and a position of the respiratory information measuring sensor detecting the selected information correspondingly with one of a diagram of the biological information measuring garment and a diagram of the examinee's body.

20. A method of controlling a cardiogram analysis device, comprising the steps of:

5       acquiring information on electric potential in accordance with an electric potential delivered from a plurality of chest lead electrodes formed of a conductive material capable of acquiring a heart potential at vicinity of chest part under a condition of less myoelectric influence regardless of variation of the heart position of an examinee by forming the garment in a length so as to cover the body surface of chest region of the examinee, the 10 lead electrodes arranged between near presternal region of the examinee to vicinity of left chest lateral part;

      comparing a plurality of amplitudes of the acquired electric potential information;

15       selecting the chest lead electrodes detecting a larger amplitude as electric potential information to be based on an output of cardiogram in accordance with the comparison result; and

      outputting cardiogram data after analysis of the electric potential information detected by the chest lead electrodes being selected.

20       21. A method of controlling a respiratory information analysis device comprising the steps of:

      acquiring electric information delivered from a plurality of respiratory information measuring sensors capable of acquiring electric information based on the variation of electric potential, the sensor 25 including a conductive material varying its electric resistance according to variation of constitution of an examinee through breathing thereof under a turning-on-electricity state;

      comparing a plurality of amplitudes of the acquired electric potential information;

30       selecting the respiratory information measuring sensors detecting a larger amplitude as electric information to be based on an output of respiratory information in accordance with the comparison result; and

      outputting respiratory information data in accordance with the

analyzed respiratory information.